

Claims

What is claimed is:

1. A durable sound absorbing panel having surface burning resistance qualities for use in a structure having a usable area, the panel comprising:
 - a panel substrate having a first face and a second face, the second face opposing the first face and substantially concealed from the environmental area when installed;
 - the panel substrate, supportable from a structure, the panel substrate including a plurality of apertures spread across the surface of the panel substrate;
 - a non-woven fibrous material attached to the first face of the panel substrate and applied such that the apertures are covered by the non-woven fibrous material;
 - the non-woven fibrous material is positioned such that nearly complete exposure of the material occurs when installed, permitting viewing from the environmental area of the structure.
2. The sound absorbing and surface burn resistant panel of claim 1, wherein the non-woven fibrous material is attached to the first face of the panel substrate with an adhesive.
3. The sound absorbing and surface burn resistant panel of claim 1, wherein the apertures include a first group having a first size and a second group having a second size.
4. The sound absorbing and surface burn resistant panel of claim 3, wherein the apertures have sizes ranging from about 0.039 inches to about 0.117 inches.
5. The sound absorbing and surface burn resistant panel of claim 1, wherein the airflow rate resistance through the panel is about 900 mks rays to about 1050 mks rays.

6. The sound absorbing and surface burn resistant panel of claim 1, wherein the airflow rate resistance through the non-woven fibrous material is about 100 mks rayls to about 600 mks rayls.

7. The sound absorbing and surface burn resistant panel of claim 1, wherein the panel includes at least two side edges, each having a flange for connection to a suspended ceiling grid, wherein the suspended ceiling grid includes a plurality of grid members interconnected to form panel openings, the grid members suspended from the structure with hangers.

8. The sound absorbing and surface burn resistant panel of claim 3, wherein the apertures include a third group having a third size.

9. An interior finishing panel for use in a building structure comprising:
a semi-rigid panel substrate adapted to be supported by its edges with minimal panel substrate flex, the panel substrate having a first face and a second face opposing the first face, the second face being substantially concealed when the finishing panel is installed within the building structure;

a first set of apertures in the panel substrate having a first size;

a non-woven fibrous material attached to the first face of the panel substrate covering the first set of apertures, the fibrous material being substantially visible when installed in the building structure.

10. The interior finishing panel of claim 9, wherein the non-woven fibrous material is attached to the first face of the panel substrate with an adhesive.

11. The interior finishing panel of claim 9, wherein the apertures have sizes ranging from about 0.039 inches to about 0.117 inches.

12. The interior finishing panel of claim 9, wherein the airflow rate resistance through the panel is about 900 mks rayls to about 1050 mks rayls.

13. The interior finishing panel of claim 9, wherein the airflow rate resistance through the non-woven fibrous material is about 100 mks rayls to about 600 mks rayls.

14. The interior finishing panel of claim 9, wherein the panel includes at least two side edges each having a flange for connection to a suspended ceiling grid, wherein the suspended ceiling grid includes a plurality of grid members interconnected to form panel openings, the grid members suspended from the structure with hangers.

15. The interior finishing panel of claim 9, wherein the panel includes a second set of apertures formed on the panel substrate having a second size.

16. The interior finishing panel of claim 9, wherein the panel includes a third set of apertures formed on the panel substrate having a third size.

17. An interior finishing panel for use in a building structure comprising:
a semi-rigid panel substrate having an exterior face and an interior face, opposing the exterior face, the interior face is adapted to be substantially concealed when the panel is installed in the building structure;

a plurality of apertures having a first size passing through the panel substrate and extending across the faces;

a non-woven fibrous material adhered to the exterior face of the panel substrate, and positioned to cover the apertures, the fibrous material is adapted to be substantially visible when the panel is installed in the building structure.

18. The interior finishing panel of claim 17, wherein the non-woven fibrous material is attached to the exterior face of the panel substrate with an adhesive.

19. The interior finishing panel of claim 17, wherein the apertures have sizes ranging from about 0.039 inches to about 0.117 inches.

20. The interior finishing panel of claim 9, wherein the airflow resistance rate through the panel is about 900 mks rayls to about 1050 mks rayls.

21. The interior finishing panel of claim 17, wherein the airflow resistance rate through the non-woven fibrous material is about 100 mks rayls to about 600 mks rayls.

22. The interior finishing panel of claim 17, wherein the panel include at least two side edges each having a flange for connection to a suspended ceiling grid, wherein the suspended ceiling grid includes a plurality of grid members interconnected to form panel openings, the grid members suspended from the structure with hangers.

23. The interior finishing panel of claim 17, wherein the panel includes a second set of apertures passing through the panel substrate having a second size

24. The interior finishing panel of claim 17, wherein the panel includes a third set of apertures formed on the panel substrate having a third size.

25. A durable sound absorbing ceiling system having fire resistive qualities for use in a structure having a usable area, the panel comprising:

a plurality of grid members interconnected to form a grid, the grid members adapted to be suspended from the structure;

a panel substrate having a first face and a second face, the second face opposing the first face and substantially concealed from the environmental area when installed;

the panel substrate, supportable from the grid, the panel substrate including a plurality of apertures spread across the surface of the panel substrate;

a non-woven fibrous material attached to the first face of the panel substrate and applied such that the apertures are covered by the non-woven fibrous material;

the non-woven fibrous material is positioned such that nearly complete exposure of the material occurs when installed, permitting viewing from the environmental area of the structure.

26. The durable sound absorbing ceiling system of claim 25, wherein the non-woven fibrous material is attached to the first face of the panel substrate with an adhesive.

27. The durable sound absorbing ceiling system of claim 25, wherein the apertures include a first group having a first size and a second group having a second size.

28. The durable sound absorbing ceiling system of claim 27, wherein the apertures have sizes ranging from about 0.039 inches to about 0.117 inches.

29. The durable sound absorbing ceiling system of claim 25, wherein the airflow rate resistance through the panel is about 900 mks rayls to about 1050 mks rayls.

30. The durable sound absorbing ceiling system of claim 1, wherein the airflow rate resistance through the non-woven fibrous material is about 100 mks rayls to about 600 mks rayls.

31. The durable sound absorbing ceiling system of claim 25, wherein the panel includes at least two side edges, each having a flange for connection to a suspended ceiling grid, wherein the suspended ceiling grid includes a plurality of grid members interconnected to form panel openings, the grid members suspended from the structure with hangers.

32. The durable sound absorbing ceiling system of claim 27, wherein the apertures include a third group having a third size.

33. The durable sound absorbing ceiling system of claim 25, wherein the second face includes a layer of porous insulation material.

34. The durable sound absorbing ceiling system of claim 25, wherein the apertures are selected from a group consisting of circular, square, triangular, rectangular and oval.